

Hubble Space Telescope Imaging of the
Environments of Young Binary Stars

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Over the past several years, our group has been conducting a snapshot imaging survey of T Tauri stars using HST's Wide Field and Planetary Camera 2. With its stable point spread function and 10 AU linear resolution in the nearby star-forming clouds, HST is providing important new information on young binary stars and their environments. The HST images suggest that the GG Tau circumbinary ring has an intrinsic eccentricity, while that of UY Aur appears more complex than initially indicated by adaptive optics images. A large elliptical cavity has been discovered surrounding the young binary Sz 19; it may be dynamically cleared. Circumstellar disks found in the HK Tau and HV Tau systems show that disks in wide binaries can be significantly misaligned. In addition to disks, we find many examples of envelope structure associated with young binaries. These range from symmetric bipolar cavities to irregular structures without obvious interpretation. In the VV CrA system we find an envelope structure localized at the infrared companion. Several HH object jets are detected in our sample, most of them previously known; the XZ Tauri outflow is particularly noteworthy for its rapid time evolution during the past five years. Finally, optical photometry of the subarcsecond binaries in our sample is providing greater insight into the nature of the companion stars.